

Echinoderm Fauna of Thailand: History and Inventory Reviews

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ABSTRACT: A comprehensive review of the literature on echinoderm recorded in Thai waters was carried out in order to obtain the correct number of species found in this area. From the study, it was found that the total numbers of species are 381: 39 crinoids, 69 asteroids, 112 ophiuroids, 67 echinoids and 94 holothurians. All species presented and their distributions are tabulated herein. There are 14 type species of echinoderms inhabiting in Thai waters and four of them are endemic. The Andaman Sea has a greater diversity of echinoderms than those in the Gulf of Thailand. Most echinoderm recorded are of shallow waters while deep-water ones are remained relatively unexplored. Further study on echinoderms of shallow water should be done in term of monographic works and marine scientists should be encouraged in order to speed up the study on other aspects of these animals as well.

KEYWORDS: Echinoderms, biodiversity, Thailand, checklist.

INTRODUCTION

Echinoderms being common and conspicuous organisms of the seashore have attracted the attention of the naturalists since very early times. Hyman¹ saluted the echinoderms as a noble group especially designed to puzzle the zoologist. Exclusively marine, echinoderms are among the most common and widely spread groups of animals in the sea.¹ They are also among the most clearly defined of animal phyla. Members are characterized by the combination of basic pentamerous adult, a calcite skeleton and hydraulic tube feet or water vascular system.² Echinoderms include animals commonly known as feather star and sea lilies (Crinoidea); starfish or sea stars (Asteroidea); brittle and basket stars (Ophiuroidea); sea urchins, sand dollars and heart urchins (Echinoidea); and sea cucumbers (Holothuroidea). They play an important role in marine ecosystems and some are economic marine animals.^{1, 2, 3}

Thailand, located in the South China Sea region and also in the Andaman Sea, plays an important role as the center of distribution of marine organisms and it may contain a very high number of species. The total coastline of Thailand is almost 2,600 kilometers, with over 300 islands. The coastlines consist of those areas along the Gulf of Thailand (Pacific Ocean) and the Andaman Sea (Indian Ocean) as well. However, many marine invertebrate fauna of Thailand are not comprehensively studied including echinoderms, and

the major expeditions have merely touched the fringes. It is the great opportunity for Thailand, when the Danish government and the Carlsberg foundation had supported the first Thai-Danish cooperation namely "The Danish Expedition to Siam 1899-1900". More than sixty Thai echinoderm species, including twelve new species were obtained.^{4, 5, 6} The following expedition was the Fifth Thai-Danish Marine Biology Expedition which had been carried out in Andaman Sea in 1969. In addition, The Danish Agency for Development Assistance (DANIDA) was the sponsor of the first training course and workshop on echinoderms in 1987, which contributed the great knowledge of echinoderms in Thailand.⁷ Over the century from the first expedition, we have still not reviewed and made the inventory of echinoderms in Thailand. This paper presents the history and comprehensive review of the literature on echinoderm recorded in Thai waters and further studies on this group of animals are still needed.

MATERIALS AND METHODS

Literature on echinoderms recorded in Thailand were collected and then the checklist of this group of animals was tabulated group by group. The confusion on scientific names had been updated taxonomically by following Rowe and Gates² and Lane, et al.⁸ Some unpublished data also included field survey; observation/collection by the authors. The data on type species; their localities and endemic species based

on the present state of their geographic distribution were also provided. For the purpose of the geographic distribution patterns, this inventory list is subdivided into two areas; the Gulf of Thailand (Pacific Ocean) and the Andaman Sea (Indian Ocean).

RESULTS AND DISCUSSION

Historic Reviews: The first recorded echinoderm for Thailand was mentioned on three echinoid species by Alexander Agassiz in "Revision of Echini" in 1872.⁶ In 1874, C.C.H. Bolau described the first new species of Thai echinoderm, *Anametalia sternaloides*, which had the type locality in the Gulf of Thailand, known as Gulf of Siam.² The first comprehensive expedition on echinoderms from Thailand was investigated by the cooperative Thai government and Danish government in 1899-1900. Supported by Danish government and Carlsberg Foundation, Dr. Th. Mortensen, as the member of The Danish Expedition to Siam 1899-1900, spent three months collecting echinoderms along the eastern coast of the Gulf of Thailand.⁶ He reported a total of 17 species of regular echinoids including one new genus and one new species in 1903 and he also described 3 new species in 1904 and one new genus, *Clypeastroida* in 1948.^{6,9} The other echinoderms from this expedition had also been investigated by Koehler, who reported 29 species of ophiuroids including one new species.¹⁰ Heding⁴ described a new species of synaptid holothurian from Ko Kut and Heding and Panning⁵ reported 6 species of phylloporid holothurians including 4 new species from the Gulf of Thailand. Mortensen also mentioned one diadematid echinoid from the Skeat Expedition, which had been explored along the southern coast of Thailand in 1901-1902.⁶ Döderlein¹¹ reported 6 species of Thai asteroids and he also described a new species of sea star from the Gulf of Thailand, which is now deposited in the Stockholm Museum.

Klinasak¹² was the first Thai scientist, who reported 49 species of Thai echinoderms from the NAGA Expedition and some of them were collected from the Gulf of Thailand and Andaman Sea. Sriyakorn⁷ reported 54 species from the Fifth Thai-Danish Marine Biology Expedition in Andaman Sea. Sanjindawong¹³ reported 17 holothurian species and 5 species were edible. In 1980s, there had been many works on Thai echinoderms. Waiyaniya¹⁴ reported 12 asteroids harvested by otter trawl from Pattaya area. She also reported 24 species from the Gulf of Thailand.^{15,16} Bussarawit and Rowe¹⁷ described a new species of Ophiocomid, *Ophiocoma similanensis* from the Andaman Sea. In 1987, Phuket Marine Biological center (PMBC) and DANIDA organized a training course and workshop in taxonomy, biology and ecology of echinoderms. The

result of the workshop showed 154 echinoderms recorded for Thailand.¹⁸ Putchakarn³ reported 56 echinoderm species from the eastern coast of Thailand and Putchakarn, et al.¹⁹ reported 33 echinoderm species from Ranong province on the Andaman Sea side. Putchakarn, et al.²⁰ reported 17 aspidochirotid holothurians from Lan and Phai Islands in Chonburi province, the Gulf of Thailand. Bussarawit and Thongtham²¹ listed 78 holothurians in Thailand. At present, there are two main institutes, which have been involved in the studies on echinoderms in Thailand. The first is PMBC, Department of Marine and Coastal Resources, Ministry of Natural Resources and Environment which collected approximately 160 species and most of them were from the Andaman Sea. Another is Institute of Marine Science (BIMS), Burapha University collected 175 species from both the Gulf of Thailand and Andaman Sea.

Inventory: A comprehensive review of the literature on echinoderms records for Thailand (as shown in Table 1) comprises 381 species in total; 39 crinoids, 69 asteroids, 112 ophiuroids, 67 echinoids and 94 holothurians. For comparison, Thai echinoderms are approximately 38 % of the South China Sea species⁸ and 33 % of Australian Waters.² Type specimens of 14 echinoderms found Thailand are consisted of one asteroid: *Astropecten fasciatus* Döderlein, 1926¹¹; two ophiuroids: *Ophiothrix abstinens* Koehler, 1930¹⁰ and *Ophiocoma similanensis* Bussarawit & Rowe, 1985¹⁷; six echinoids: *Chaetodiadema granulatatum* Mortensen, 1903⁶, *Paratrema doederleini* Mortensen, 1904⁶; *Temnotrema siamensis* (Mortensen, 1904)⁶, *Gymnechinus pulchellus* Mortensen, 1904⁶, *Fibularia angulipora* Mortensen, 1948⁹, and *Anametalia sternaloides* (Bolau, 1874)²; and five holothurians: *Phyllophorus* (*Phyllophorella*) *kohkutiensis* Heding & Panning, 1954⁵, *P.* (*Phyllophorella*) *robusta* Heding & Panning, 1954⁵, *Selenikiella malayense* Heding & Panning, 1954⁵, *S. siamense* Heding & Panning, 1954⁵, and *Opheodesoma lineata* Heding, 1928.⁴ One asteroid and three holothurians are considered to be endemic species of Thailand, namely *A. fasciatus*, *P. robusta*, *S. malayense* and *S. siamense*.

The distribution patterns of Thai echinoderms are as shown in Table 2. There are 93 species of echinoderms out of 190 species found only in the Gulf of Thailand and 191 species out of 288 species are found only Andaman Sea. And 97 species out of 381 species are found from the both areas. It should be noted that echinoderms from the Andaman Sea are more diverse than those in the Gulf of Thailand. The possible reasons for this might be that the habitats in the Andaman Sea are more diverse than those of the Gulf of Thailand and they are open water.

Although Thai echinoderm study has been done for

Table 1. Echinoderm species lists and distributions in Thailand.

Explanation of symbols: names of Thailand type species are bold; X = presence of species (bolded for type localities); * = specimens deposited at Institute of Marine Science, Burapha University; ** = specimens deposited at Phuket Marine Biological Center; A = field observation/collections of the author (1991-2000).

Taxa	Distribution		References
	Gulf of Thailand	Andaman Sea	
CRINOIDEA			
Order COMATULIDA			
Comasteridae			
1. <i>Capillaster multiradiatus</i> (Linnaeus, 1758)		X	12,18
2. <i>Capillaster sentosus</i> (Carpenter, 1888)		X	18
3. <i>Comantheria briareus</i> (Bell, 1882) ¹		X	18
4. <i>Comantheria polycnemis</i> (A.H. Clark, 1909) ¹		X	18,22
5. <i>Comanthina schlegelii</i> (Carpenter, 1881)		X	18
6. <i>Comanthus parvicirrus</i> (Müller, 1841)		X	22, **
7. <i>Comanthus samoanus</i> A.H. Clark, 1909		X	18
8. <i>Comanthus timorensis</i> (Müller, 1841) ²		X	18
9. <i>Comaster brevicirrus</i> (Bell, 1894)		X	**
10. <i>Comaster gracilis</i> (Hartlaub, 1890)		X	7
11. <i>Comaster multibrachiatus</i> (Carpenter,1888)		X	18
12. <i>Comaster multifidus</i> (Müller, 1841)		X	18
13. <i>Comatella maculata</i> (Carpenter,1888)		X	18
14. <i>Comatella nigra</i> (Carpenter,1888)		X	12,18
15. <i>Comatella stelligera</i> (Carpenter,1888)		X	18
16. <i>Comtula purpurea</i> (Müller, 1841)		X	18
17. <i>Oxycomanthus bennetti</i> (Müller, 1841)		X	22
Zygometridae			
18. <i>Zygometra punctata</i> A.H. Clark, 1912		X	18
Himerometridae			
19. <i>Amphimetra ensifer</i> (A.H. Clark, 1908)		X	7
20. <i>Amphimetra molleri</i> (A.H. Clark, 1908)		X	18
21. <i>Amphimetra tessellata discoidea</i> (Müller, 1841)		X	12
22. <i>Craspedometra acuticirra</i> (Carpenter,1882)		X	7,18
23. <i>Heterometra bengalensis</i> (Hartluab, 1890)		X	18
24. <i>Heterometra sarae</i> (A.H. Clark, 1941)		X	18
25. <i>Himerometra magnipinna</i> A.H. Clark, 1908		X	18
26. <i>Himerometra robustipinna</i> (Carpenter,1881)		X	22
Mariametridae			
27. <i>Dichrometra bimaculata</i> (Carpenter,1881)	X		23
28. <i>Dichrometra tenuicirra</i> A.H. Clark, 1912	X	X	22
29. <i>Lamprometra palmata</i> (Müller, 1841)	X	X	3,18,22,23,24
30. <i>Liparometra articulata</i> (Müller, 1849)	X		23
31. <i>Oxymetra finschi</i> (Hartluab, 1890)		X	22
32. <i>Stephanometra indica</i> (Smith, 1876)		X	18
33. <i>Stephanometra oxycantha</i> (Hartluab, 1890)	X		22
34. <i>Stephanometra spicata</i> (Carpenter, 1881)	X		3,22,23
Colobometridae			
35. <i>Cenometra bella</i> (Hartluab, 1890)		X	18,A
36. <i>Cenometra herdmanni</i> A.H. Clark, 1909		X	18
37. <i>Colobometra perspinosa</i> (Carpenter, 1881)		X	22
38. <i>Oligometra serripinna</i> (Carpenter, 1881)		X	18
Antedonidae			
39. <i>Dorometra nana</i> (Hartluab, 1890)		X	18
ASTEROIDEA			
Order PAXILLOSIDA			
Luidiidae			
1. <i>Luidia forficera</i> Sladen, 1889 ³		X	7
2. <i>Luidia hardwicki</i> (Gray, 1840) ³	X	X	3,14,15,16,18,23,25,
3. <i>Luidia maculata</i> Müller & Troschel, 1842	X	X	3,12,14,15,16,18,23
4. <i>Luidia penangensis</i> de Loriol, 1891	X		15,16,25
5. <i>Luidia savignyi</i> (Audouin, 1826)		X	18

¹ genus *Comantheria* was considered a synonym of *Comanthus* in Rowe & Gates, 1995: 143.

² *Comanthus timorensis* is a probable synonym of *Comanthus parvicirrus* – see Rowe & Gate, 1995: 144-145.

Table 1. Cont'd.

Taxa	Distribution		References
	Gulf of Thailand	Andaman Sea	
Astropectinidae			
6. <i>Astropecten bengalensis</i> Döderlein, 1917		X	18,19
7. <i>Astropecten granulatus</i> Müller & Troschel, 1842	X	X	3,7,18
8. <i>Astropecten fasciatus</i> Döderlein, 1926	X		11
9. <i>Astropecten indicus</i> Döderlein, 1888	X	X	3,7,18,23,26
10. <i>Astropecten monacanthus</i> Sladen, 1883	X	X	3,12,18,23,26
11. <i>Astropecten polyacanthus</i> Müller & Troschel, 1842	X	X	3,7,12,18,23
12. <i>Astropecten pusillus</i> Sluiter, 1889		X	18
13. <i>Astropecten vappa</i> Müller & Troschel, 1842	X	X	3,12,18,23
14. <i>Astropecten velitaris</i> von Martens, 1865	X	X	3,14,15,16,23
15. <i>Astropecten zebra</i> Sladen, 1883	X	X	3,14,18
16. <i>Craspidaster hesperus</i> Müller & Troschel, 1840	X		14,15,16,18,26
17. <i>Psilaster andromeda</i> Sladen1885	X		12
Order VALVATIDA			
Archasteridae			
18. <i>Archaster angulatus</i> Müller & Troschel, 1842		X	18
19. <i>Archaster typicus</i> Müller & Troschel, 1840		X	18
Asterodiscididae			
20. <i>Asterodiscides belli</i> Rowe, 1977		X	18
Goniasteridae			
21. <i>Stellaster equestris</i> (Retzius, 1805) ⁴	X	X	7,14,16,18
22. <i>Stellaster incei</i> Gray, 1847 ⁴	X		12, **
23. <i>Stellaster princeps</i> Sladen, 1889	X		12
Oreasteridae			
24. <i>Anthenea chinensis</i> Gray, 1840	X		12
25. <i>Anthenea flavescens</i> (Gray, 1840)		X	23
26. <i>Anthenea pentagonula</i> (Lamarck, 1816) ⁵	X		3,14,16,23,26, **
27. <i>Anthenea regalis</i> Koehler, 1910 ⁵	X	X	3,18
28. <i>Choriaster granulatus</i> Lütken, 1869		X	2
29. <i>Culcita novaeguineae</i> Müller & Troschel, 1842	X		3,12,14,18,23
30. <i>Culcita schmideliana</i> (Retzius, 1805)		X	7, **
31. <i>Goniodiscaster forficulatus</i> (Perrier, 1875)	X		14,15,16,18,26
32. <i>Goniodiscaster granuliferus</i> (Gray, 1847)		X	18
33. <i>Pentacaster alveolatus</i> (Perrier, 1875)	X		14,15
34. <i>Pentacaster australis</i> (Lütken, 1871) ⁶		X	7
35. <i>Pentacaster gracilis</i> (Lütken, 1871)	X		3,16,18
36. <i>Pentacaster regulus</i> (Müller & Troschel, 1842)	X		8,14,15,16,18,19,23,26
37. <i>Pentacaster sibogae</i> Döderlein, 1916	X		14
38. <i>Pentacaster westermanni</i> (Lütken, 1871)	X		14
39. <i>Pentaceraopsis tyloderma</i> Fisher, 1913 ⁷		X	18
40. <i>Pentaster obtusatus</i> (Bory de St Vincent, 1827) ⁷		X	18,19
41. <i>Poraster superbus</i> (Möbius, 1859)		X	18
42. <i>Protoreaster lincki</i> (de Blainville, 1830)		X	18
43. <i>Protoreaster nodosus</i> (Linnaeus, 1758)	X	X	18,19
Ophidiasteridae			
44. <i>Dactyloaster cylindricus</i> (Lamarck, 1816)		X	A
45. <i>Fromia hemiopl</i> a Fisher, 1913		X	18, *
46. <i>Fromia indica</i> (Perrier, 1869)		X	18, *
47. <i>Fromia monilis</i> Perrier, 1869		X	18
48. <i>Leiaster speciosus</i> von Martens, 1866		X	A
49. <i>Linckia guildingi</i> Gray, 1840		X	18,A
50. <i>Linckia laevigata</i> (Linnaeus, 1758)		X	7,18
51. <i>Linckia multifora</i> (Lamarck, 1816)		X	18,A
52. <i>Nardoa lemonnieri</i> Koehler, 1910		X	18
53. <i>Neoferdina cumingi</i> (Gray, 1840)		X	18

³ *Luidia forficera* was considered to be synonym of *Luidia hardwicki* – see Rowe & Gates, 1995: 74.⁴ *Stellaster incei* is a synonym of *Stellaster equestris* – see Rowe & Gates, 1995: 69-70.⁵ Possible synonyms of *Anthenea pentagonula* – see Rowe & Gates, 1995: 95; Lane et al, 2000:472.⁶ *Pentacaster australis* is a synonym of *Pentacaster regulus* – see A.M. Clark, 1993: 311.⁷ *Pentaceraopsis tyloderma* is a synonym of *Pentaster obtusatus* – see A.M. Clark, 1993: 317.

Table 1. Cont'd.

Taxa	Distribution		References
	Gulf of Thailand	Andaman Sea	
54. <i>Ophidiaster granifer</i> Lütken, 1871		X	18
55. <i>Paraferdina laccadivensis</i> James, 1976		X	18
Asterinidae			
56. <i>Anseropoda rosacea</i> (Lamarck, 1816)		X	18
57. <i>Asterina coronata</i> von Martens, 1866		X	18
58. <i>Asterina sarasini</i> (de Loriol, 1897)	X		*
59. <i>Nepanthia maculata</i> Gray, 1840		X	A
60. <i>Nepanthia suffarcinata</i> Sladen, 1889 ⁸		X	18
61. <i>Patiriella exigua</i> (Lamarck, 1816)		X	18
Mithrodiidae			
62. <i>Mithrodia clavigera</i> (Lamarck, 1816)		X	18
Asteropseidae			
63. <i>Asteropsis caranifera</i> (Lamarck, 1816)	X	X	3,18,23
Acanthasteridae			
64. <i>Acanthaster planci</i> (Linnaeus, 1758)	X	X	3,7,18,23
Order VELATIDA			
Pterasteridae			
65. <i>Euretaster cribozus</i> (von Martens, 1867)	X	X	3,14,18,23
Order SPINULOSIDA			
Echinasteridae			
66. <i>Echinaster luzonica</i> (Gray, 1840)	X		A
67. <i>Echinaster purpureus</i> (Gray, 1840)		X	*
68. <i>Echinaster stereosomus</i> Fisher, 1913		X	18
69. <i>Metrodira subulata</i> Gray, 1840		X	7,18
OPHIUROIDEA			
Order PHRYNOPHIURIDA			
Ophiomyxidae			
1. <i>Ophiomyxa irregularis</i> Koehler, 1898	X		10
Euryalidae			
2. <i>Euryale aspera</i> Lamarck, 1816	X	X	10,15,18
Asteronychidae			
3. <i>Asteronyx loveni</i> Müller & Troschel, 1842	X		12
Gorgonocephalidae			
4. <i>Astroboa clavata</i> (Lyman, 1861)		X	**
5. <i>Astroboa nuda</i> (Lyman, 1874)		X	18
6. <i>Astrocladus exiguus</i> (Lamarck, 1816)		X	18
Order OPHIURIDA			
Ophiacanthidae			
7. <i>Ophiacantha indica</i> Ljungman, 1867		X	**
8. <i>Ophioplinthaca rudis</i> (Koehler, 1897)		X	12
Amphiuridae			
9. <i>Amphilycus scripta</i> (Koehler, 1904)	X	X	3,18,19,23,28
10. <i>Amphiodia obtecta</i> Mortensen, 1940		X	18
11. <i>Amphioplus relictus</i> (Koehler, 1905) ⁹	X	X	10,18
12. <i>Amphioplus</i> (<i>Amphichilus</i>) <i>cesareus</i> (Koehler, 1905)	X	X	10,18
13. <i>Amphioplus</i> (<i>Amphichilus</i>) <i>impressus</i> (Ljungman, 1867)		X	18
14. <i>Amphioplus</i> (<i>Amphichilus</i>) <i>intermedius</i> (Koehler, 1905)		X	18
15. <i>Amphioplus</i> (<i>Amphioplus</i>) <i>didymus</i> H.L. Clark, 1938		X	18
16. <i>Amphioplus</i> (<i>Amphioplus</i>) <i>lucidus</i> Koehler, 1922		X	**
17. <i>Amphioplus</i> (<i>Amphioplus</i>) <i>personatus</i> (Koehler, 1905)		X	18
18. <i>Amphioplus</i> (<i>Amphioplus</i>) <i>praestans</i> (Koehler, 1905)		X	**
19. <i>Amphioplus</i> (<i>Amphioplus</i>) <i>seminudus</i> Mortensen, 1940		X	18
20. <i>Amphioplus</i> (<i>Amphioplus</i>) <i>stenaspis</i> H.L. Clark, 1938		X	18
21. <i>Amphioplus</i> (<i>Lymanella</i>) <i>andreae</i> (Lütken, 1872)		X	**
22. <i>Amphioplus</i> (<i>Lymanella</i>) <i>depressa</i> (Ljungman, 1867) ⁹	X	X	13,28
23. <i>Amphioplus</i> (<i>Lymanella</i>) <i>laevis</i> (Lyman, 1874)		X	18
24. <i>Amphioplus</i> (<i>Unioplus</i>) <i>conditus</i> (Koehler, 1905)		X	**

⁸ *Nepanthia suffarcinata* is a synonym of *Nepanthia belcheri* (Perrier, 1875) – see Rowe & Gates, 1995:37.⁹ *Amphioplus relictus* is considered a synonym of *Amphioplus* (*Lymanella*) *depressa* – see Rowe & Gates, 1995: 345.

Table 1. Cont'd.

Taxa	Distribution		References
	Gulf of Thailand	Andaman Sea	
25. <i>Amphipholis misera</i> (Koehler, 1899)	X	X	7,10,18
26. <i>Amphipholis squamata</i> (Delle Chiaje, 1829)	X		10,28
27. <i>Amphiura</i> (<i>Amphiura</i>) <i>abbreviata</i> Koehler, 1905	X		10
28. <i>Amphiura</i> (<i>Amphiura</i>) <i>ambigua</i> Koehler, 1905		X	7,**
29. <i>Amphiura</i> (<i>Amphiura</i>) <i>luetkeni</i> Duncan, 1879		X	18
30. <i>Amphiura</i> (<i>Amphiura</i>) <i>sexradiata</i> Koehler, 1930	X		10
31. <i>Amphiura</i> (<i>Felleria</i>) <i>ecnomiotata</i> H.L. Clark, 1911		X	**
32. <i>Amphiura</i> (<i>Felleria</i>) <i>heptacantha</i> (Mortensen, 1940)	X	X	18,28
33. <i>Amphiura</i> (<i>Ophiopeltis</i>) <i>phalerata</i> (Lyman, 1874)		X	18
34. <i>Dougaloplus acanthinus</i> (H.L. Clark, 1911)	X	X	10,**
35. <i>Dougaloplus echinatus</i> (Ljungman, 1867)		X	18
36. <i>Ophiocentrus dilatatus</i> (Koehler, 1905)		X	18
37. <i>Ophiocentrus verticillata</i> (Döderlein, 1896)		X	18
38. <i>Paracrocrida sinensis</i> (A.H. Clark, 1917)		X	18
Ophiactidae			
39. <i>Ophiactis affinis</i> Duncan, 1879	X		10
40. <i>Ophiactis conferta</i> Koehler, 1905		X	28
41. <i>Ophiactis delagoa</i> Balinsky, 1957		X	18
42. <i>Ophiactis helmitiles</i> H.L. Clark, 1915	X		3,10,23
43. <i>Ophiactis modesta</i> Brock, 1888	X	X	18,28
44. <i>Ophiactis savignyi</i> (Müller & Troschel, 1842)	X	X	10,12,13,18,19,28
45. <i>Ophiosphaera insignis</i> Brock, 1888	X		3,10,23,28
Ophiotrichidae			
46. <i>Macrophiothrix aspidota</i> (Müller & Troschel, 1842)	X		10,28
47. <i>Macrophiothrix bedoti</i> (de Lorient, 1893)	X		27
48. <i>Macrophiothrix callizona</i> (H.L. Clark, 1938) ¹⁰		X	19,28
49. <i>Macrophiothrix demessa</i> (Lyman, 1861)		X	A
50. <i>Macrophiothrix fumaria</i> (Müller & Troschel, 1842) ¹¹		X	28
51. <i>Macrophiothrix galataeae</i> (Lütken, 1872)	X		10
52. <i>Macrophiothrix hirsuta</i> (Müller & Troschel, 1842)	X	X	7,28,**
53. <i>Macrophiothrix irregularis</i> (H.L. Clark, 1938) ¹²		X	27
54. <i>Macrophiothrix koehleri</i> A.M. Clark, 1968		X	18
55. <i>Macrophiothrix longipeda</i> (Lamarck, 1816)	X	X	3,23,28
56. <i>Macrophiothrix lorioli</i> A.M. Clark, 1968		X	27
57. <i>Macrophiothrix martensi</i> (Lyman, 1874) ¹²	X	X	18,28
58. <i>Macrophiothrix melanosticta</i> (Grube, 1868) ¹¹		X	18
59. <i>Macrophiothrix nereidina</i> (Lamarck, 1816) ¹²	X	X	12,18,19
60. <i>Macrophiothrix propinqua</i> (Lyman, 1861) ¹²		X	18
61. <i>Macrophiothrix striolata</i> (Grube, 1868) ¹¹	X	X	12,27
62. <i>Macrophiothrix variabilis</i> (Duncan, 1887)	X	X	3,18,19,23,28
63. <i>Ophiocnemis marmorata</i> (Lamarck, 1816)	X	X	3,10,15,16,18,23,25,26, 28
64. <i>Ophiogymna elegans</i> Ljungman, 1866	X	X	10,18
65. <i>Ophiogymna pellicula</i> (Duncan, 1876)	X		10
66. <i>Ophiomaza cacaotica</i> Lyman, 1871		X	18,25
67. <i>Ophiopsammium semperi</i> Lyman, 1874	X		10,28
68. <i>Ophiopsammium rugosum</i> Koehler, 1905	X		10
69. <i>Ophiopteron elegans</i> Ludwig, 1888	X	X	18,28
70. <i>Ophiopteron vitense</i> Koehler, 1927	X		10
71. <i>Ophiopteron punctoceruleum</i> Koehler, 1922	X		10
72. <i>Ophiothela danae</i> Verrill, 1869	X	X	3,7,10,18,23,28
73. <i>Ophiiothrix</i> (<i>Acanthophiothrix</i>) <i>armata</i> Koehler, 1905	X	X	28
74. <i>Ophiiothrix</i> (<i>Acanthophiothrix</i>) <i>lepidus</i> de Lorient, 1893		X	**
75. <i>Ophiiothrix</i> (<i>Acanthophiothrix</i>) <i>leucotrigona</i> H.L. Clark, 1915		X	28
76. <i>Ophiiothrix</i> (<i>Acanthophiothrix</i>) <i>proteus</i> Koehler, 1905		X	18
77. <i>Ophiiothrix</i> (<i>Acanthophiothrix</i>) <i>purpurea</i> von Martens, 1867		X	18,28
78. <i>Ophiiothrix</i> (<i>Acanthophiothrix</i>) <i>spinosissima</i> Koehler, 1905	X		3,23,28
79. <i>Ophiiothrix</i> (<i>Ophiiothrix</i>) <i>abstinens</i> Koehler, 1930 ¹³	X		10

¹⁰ *Macrophiothrix speciosa* (Putchakarn et al., 1998: 6) was reexamined to be *Macrophiothrix callizona* by Komkham, 2001.¹¹ transferred from subgenus *Ophiiothrix* (*Placophiothrix*) – see Hoggett, 1991.¹² transferred from subgenus *Ophiiothrix* (*Keystonea*) – see Hoggett, 1991.¹³ *Ophiiothrix abstinens* is possible a synonym of *Ophiiothrix panchyendytia* H.L. Clark, 1911 – see Irimura, 1981: 47.

Table 1. Cont'd.

Taxa	Distribution		References
	Gulf of Thailand	Andaman Sea	
80. <i>Ophiothrix</i> (<i>Ophiothrix</i>) <i>ciliaris</i> (Lamarck, 1816)		X	28, **
81. <i>Ophiothrix</i> (<i>Ophiothrix</i>) <i>exigua</i> Lyman, 1874	X	X	3,10,18,28
82. <i>Ophiothrix</i> (<i>Ophiothrix</i>) <i>faveolata</i> Marktanner-Turneretscher, 1887			X **
83. <i>Ophiothrix</i> (<i>Ophiothrix</i>) <i>plana</i> Lyman, 1874	X		10,28
84. <i>Ophiothrix</i> (<i>Ophiothrix</i>) <i>prostrata</i> Koehler, 1922	X		10
85. <i>Ophiothrix</i> (<i>Ophiothrix</i>) <i>savignyi</i> (Müller & Troschel, 1842)		X	**
86. <i>Ophiothrix</i> (<i>Ophiothrix</i>) <i>stelligera</i> Lyman, 1874 ¹⁴	X	X	10,18
87. <i>Ophiothrix</i> (<i>Ophiothrix</i>) <i>vitrea</i> Döderlein, 1896		X	**
Ophiocomidae			
88. <i>Ophiocoma</i> <i>brevipes</i> Peters, 1851		X	7,19
89. <i>Ophiocoma</i> <i>dentata</i> Müller & Troschel, 1842		X	18
90. <i>Ophiocoma</i> <i>erinaceus</i> Müller & Troschel, 1842		X	18
91. <i>Ophiocoma</i> <i>lineolata</i> Müller & Troschel, 1842 ¹⁵	X		12
92. <i>Ophiocoma</i> <i>pica</i> Müller & Troschel, 1842 ¹⁵		X	A, **
93. <i>Ophiocoma</i> <i>scolopendrina</i> (Lamarck, 1816)		X	18,28
94. <i>Ophiocoma</i> <i>similanensis</i> Bussarawit & Rowe, 1985		X	17
95. <i>Ophiocomella</i> <i>sexradia</i> (Duncan, 1887) ¹⁶	X	X	18,28
96. <i>Ophiomastix</i> <i>annulosa</i> (Lamarck, 1816)		X	18, *
97. <i>Ophiomastix</i> <i>caryphyllata</i> Lütken, 1869		X	18
98. <i>Ophiomastix</i> <i>sexradiata</i> A.H. Clark, 1952 ¹⁶	X	X	28
99. <i>Ophiopsila</i> <i>dilatata</i> Koehler, 1930		X	**
100. <i>Ophiopsila</i> <i>pantherina</i> Koehler, 1898		X	18
101. <i>Ophiopsila</i> <i>timida</i> Koehler, 1930		X	**
Ophionereididae			
102. <i>Ophionereis</i> <i>dubia</i> (Müller & Troschel, 1842)	X	X	18,19,28
103. <i>Ophionereis</i> <i>porrecta</i> Lyman, 1860	X	X	18,19,28
Ophiadermatidae			
104. <i>Ophiarachnella</i> <i>gorgonia</i> (Müller & Troschel, 1842)	X	X	7,10,12,18,19
105. <i>Ophiarachnella</i> <i>infernalis</i> (Müller & Troschel, 1842)	X		10,28
106. <i>Ophioclasma</i> <i>stellatum</i> (Ljungman, 1867)	X		10,12,31,*
Ophiuridae			
107. <i>Ophiolepis</i> <i>cincta</i> Müller & Troschel, 1842	X	X	7,12,18,28
108. <i>Ophiolepis</i> <i>superba</i> H.L. Clark, 1915		X	18,28
109. <i>Ophioplocus</i> <i>imbricatus</i> Müller & Troschel, 1842		X	19
110. <i>Ophioplocus</i> <i>japonicus</i> H.L. Clark, 1911	X		10
111. <i>Ophiura</i> <i>kinbergi</i> (Lyman, 1867)	X	X	3,10,18,23,28
112. <i>Stegophiura</i> <i>sterilis</i> Koehler, 1922	X		10
ECHINOIDEA			
Order CIDAROIDA			
Cidaridae			
1. <i>Phyllacanthus</i> <i>imperialis</i> (Lamarck, 1816)		X	18,33
2. <i>Prionocidaris</i> <i>bispinosa</i> (Lamarck, 1816)	X		3,6,12,23,33,**
3. <i>Prionocidaris</i> <i>verticillata</i> (Lamarck, 1816)		X	18
Order ECHINOTHURIOIDA			
Echinothruidae			
4. <i>Asthenosoma</i> <i>varium</i> Grube, 1868		X	7
Order DIADEMATOIDA			
Diadematidae			
5. <i>Astropyga</i> <i>radiata</i> (Leske, 1778)	X	X	6,18,33
6. <i>Chaetodiadema</i> <i>granulatum</i> Mortensen, 1903	X	X	6,15,16,18
7. <i>Diadema</i> <i>savignyi</i> (Michelin, 1845)		X	33
8. <i>Diadema</i> <i>saxatile</i> (Linnaeus, 1758) ¹⁷	X		6,16
9. <i>Diadema</i> <i>setosum</i> (Leske, 1778) ¹⁷		X	3,7,12,18,19,23,25,33
10. <i>Echinothrix</i> <i>calamaris</i> (Pallas, 1774)	X	X	3,6,7,12,18,19,23,33
Order PHYMOSOMATOIDA			
Stomopneustidae			
11. <i>Stomopneustes</i> <i>variolaris</i> (Lamarck, 1816)		X	7,18

¹⁴ *Ophiothrix stelligera* is a synonym of *Ophiothrix ciliaris* – see Rowe & Gates, 1995: 421.¹⁵ *Ophiocoma lineolata* is a synonym of *Ophiocoma pica* – see Rowe & Gates, 1995: 387.¹⁶ Komkham, 2001 believed that *Ophiocomella sexradia* and *Ophiomastix sexradiata* were different species – see Clark & Rowe, 1971: 118 and Komkham, 2001: 53-55, 76.¹⁷ *Diadema saxatile* is a synonym of *Diadema setosum* – see Mortensen, 1904: 9.

Table 1. Cont'd.

Taxa	Distribution		References
	Gulf of Thailand	Andaman Sea	
Order TEMNOPLEUROIDA			
Temnopleuridae			
12. <i>Mespilia globulus</i> (Linnaeus, 1758)		X	7,12,18,33
13. <i>Paratrema doederleini</i> (Mortensen, 1904)	X	X	6,18
14. <i>Salmaciella dussumieri</i> (L. Agassiz, 1846)	X	X	3,6,18,19,23
15. <i>Salmacis bicolor</i> L. Agassiz, 1846	X	X	6,15,16,18,23,25,26
16. <i>Salmacis sphaeroides</i> (Linnaeus, 1758)	X	X	3,6,7,33,**
17. <i>Salmacis virgulata</i> L. Agassiz, 1846	X	X	3,6,12,19,33,**
18. <i>Temnopleurus alexandri</i> (Bell, 1884)	X		25,26
19. <i>Temnopleurus reevesi</i> (Gray, 1855)	X		6,12
20. <i>Temnopleurus toreumaticus</i> (Leske, 1778)	X	X	6,16,18,23,25,26
21. <i>Temnotrema reticulatum</i> (Mortensen, 1904)		X	18
22. <i>Temnotrema siamensis</i> (Mortensen, 1904)	X	X	6,**
Order ECHINOIDA			
Toxopneustidae			
23. <i>Gymnechinus pulchellus</i> Mortensen, 1904	X		6
24. <i>Gymnechinus robillardi</i> (de loriol, 1883)		X	18
25. <i>Nudechinus multicolor</i> (Yoshiwara, 1898)		X	33
26. <i>Pseudoboletia maculata</i> Troschel, 1869	X		33
27. <i>Toxopneustes pileolus</i> (Lamarck, 1816)	X	X	3,6,18,23,33
28. <i>Tripneustes gratilla</i> (Linnaeus, 1758)		X	18,33
29. <i>Tripneustes</i> sp.	X		12
Echinometridae			
30. <i>Colobocentrotus atratus</i> (Linnaeus, 1758)		X	18,33
31. <i>Echinometra mathaei</i> (de Blainville, 1825)		X	12,18,33
32. <i>Echinostrephus molaris</i> (de Blainville, 1825)		X	18,33
33. <i>Heliocidaris</i> sp.	X		12
34. <i>Heterocentrotus mammillatus</i> (Linnaeus, 1758)	X	X	6,A
Parasaleniidae			
35. <i>Parasalenia gratiosa</i> A. Agassiz, 1863	X		3,6,23,33
Strongylocentrotidae			
36. <i>Strongylocentrotus echinoides</i> A. Agassiz, 1863	X		12
Order CLYPEASTEROIDA			
Clypeasteridae			
37. <i>Clypeaster (Coronanthus) latissimus</i> (Lamarck, 1816)	X	X	7,15,16,18,26
38. <i>Clypeaster (Leptoclypus) rarispinus</i> de Meijere, 1902		X	7,18
39. <i>Clypeaster (Rhaphidoclypus) reticulatus</i> (Linnaeus, 1758)	X	X	7,18,19,25
Arachnoididae			
40. <i>Arachnoides placentra</i> (Linnaeus, 1758)	X	X	12,18,23,26,33
Fibulariidae			
41. <i>Echinocyamus crispus</i> Mazzetti, 1894		X	18
42. <i>Fibularia acuta</i> Yoshiwara, 1898	X		9
43. <i>Fibularia angulipora</i> Mortensen, 1948	X	X	9,**
Laganidae			
44. <i>Laganum decagonale</i> (de Blainville, 1827)	X	X	7,12,16,18,33
45. <i>Laganum depressum</i> Lesson, 1841	X	X	12,18,19
46. <i>Peronella lesueuri</i> (Valenciennes, 1841)		X	18
47. <i>Peronella orbicularis</i> (leske, 1778)	X		12
48. <i>Peronella rubra</i> (Döderlein , 1885)		X	18
Astriclypeidae			
49. <i>Echinodiscus auritus</i> Leske, 1778	X	X	3,7,15,16,18,19,23,25,33
50. <i>Echinodiscus bisperforatus</i> Leske, 1778	X	X	7,12,18,19,26,33
51. <i>Echinodiscus tenuissimus</i> (L. Agassiz, 1847)		X	18
Order CASSIDULOIDA			
Echinolampididae			
52. <i>Echinolampas alexandri</i> de Loriol, 1876		X	33,**
Order SPATANGOIDA			
Spatangidae			
53. <i>Maretia planulata</i> (Lamarck, 1816) ¹⁸	X	X	7,16,18,26,33
54. <i>Maretia ovata</i> (Leske, 1778) ¹⁸	X		12

Table 1. Cont'd.

Taxa	Distribution		References
	Gulf of Thailand	Andaman Sea	
Asterostomatidae			
55. <i>Linopneustes brachypetalus</i> Mortensen, 1950		X	**
56. <i>Heterobrissus niasicus</i> (Döderlein , 1901)		X	**
Loveniidae			
57. <i>Lovenia elongata</i> (Gray, 1845)	X	X	3,7,12,15,16,18,20,23, 26,34
58. <i>Lovenia subcarinata</i> (Gray, 1845)	X		3,18,23,33,35
Schizasteridae			
59. <i>Moiria stygia</i> A. Agassiz, 1872		X	19
60. <i>Schizaster (Schizaster) lacunosus</i> (Linnaeus, 1758)	X		29
Brissidae			
61. <i>Anametalia sternaloides</i> (Bolau, 1874)	X		2,31
62. <i>Brissopsis luzonica</i> (Gray, 1851)	X	X	3,15,16,23,25,26,33,**
63. <i>Brissus (Brissus) latecarinatus</i> (Leske, 1778)	X	X	3,12,33
64. <i>Brissus (Allobrissus) agassizii</i> (Döderlein , 1885)		X	18
65. <i>Metalia spatagus</i> (Linnaeus, 1758)		X	18
66. <i>Metalia sternalis</i> (Lamarck, 1816)	X	X	3,18,33,34
67. <i>Rhynobrissus pyramidalis</i> A. Agassiz, 1872	X		35
HOLOTHUROIDEA			
Order ASPIDOTHELOIDEA			
Holothuriidae			
1. <i>Actinopyga echinites</i> (Jaeger, 1833)	X	X	21,A
2. <i>Actinopyga lecanora</i> (Jaeger, 1833)		X	21,A
3. <i>Actinopyga mauritiana</i> (Quoy & Gaimard, 1833)		X	21,*
4. <i>Actinopyga miliaris</i> (Quoy & Gaimard, 1833)		X	21
5. <i>Actinopyga obesa</i> (Selenka, 1867)		X	21
6. <i>Actinopyga</i> sp. 1		X	21
7. <i>Actinopyga</i> sp. 2	X		25
8. <i>Bohadschia argus</i> (Jaeger, 1833)		X	21,13
9. <i>Bohadschia atra</i> Massin <i>et.al.</i> , 1999		X	A
10. <i>Bohadschia bivittata</i> (Mitsukuri, 1912) ¹⁹		X	21
11. <i>Bohadschia marmorata</i> (Jaeger, 1833) ¹⁹	X	X	19,21,36
12. <i>Bohadschia vitiensis</i> (Semper, 1868) ¹⁹	X	X	21,36
13. <i>Holothuria (Acanthotrapeza) coluber</i> (Semper, 1868)		X	13,21
14. <i>Holothuria (Acanthotrapeza) pyxis</i> Selenka, 1867		X	*
15. <i>Holothuria (Cystipus) rigida</i> (Selenka, 1867)	X	X	13,21
16. <i>Holothuria (Halodeima) atra</i> Jaeger, 1833	X	X	3,12,13,19,20,36
17. <i>Holothuria (Halodeima) edulis</i> Lesson, 1830	X	X	13,21,A
18. <i>Holothuria (Lessonothuria) pardalis</i> Selenka, 1867	X	X	21,36
19. <i>Holothuria (Lessonothuria) verrucosa</i> Selenka, 1867	X	X	21,36
20. <i>Holothuria (Mertensiothuria) leucospilota</i> (Brandt, 1835)	X	X	3,12,21,23,36
21. <i>Holothuria (Metriatyla) albiventer</i> Semper, 1868	X	X	21
22. <i>Holothuria (Metriatyla) martensi</i> Semper, 1868	X	X	21,*
23. <i>Holothuria (Metriatyla) ocellata</i> Jaeger, 1833	X	X	2,3,13,21,23,26
24. <i>Holothuria (Metriatyla) scabra</i> Jaeger, 1833	X	X	12,13,21,26,*
25. <i>Holothuria (Microthele) axiologa</i> H.L. Clark, 1921 ²⁰		X	21
26. <i>Holothuria (Microthele) fuscopunctata</i> Jaeger, 1833 ²⁰		X	21
27. <i>Holothuria (Microthele) nobilis</i> (Selenka, 1867)		X	A
28. <i>Holothuria (Platyperona) difficilis</i> Semper, 1868	X	X	21,36
29. <i>Holothuria (Selenkothuria) erinacea</i> Semper, 1868		X	21
30. <i>Holothuria (Selenkothuria) moebii</i> Ludwig, 1883		X	21
31. <i>Holothuria (Semperothuria) cinerascens</i> (Brandt, 1835)		X	21
32. <i>Holothuria (Semperothuria) flavomaculata</i> Semper, 1868	X		3,21,23,36
33. <i>Holothuria (Stauropora) fuscocinerea</i> Jaeger, 1833 ²¹	X	X	21,23,36
34. <i>Holothuria (Theelothuria) notabilis</i> Ludwig, 1875	X	X	21,25,26
35. <i>Holothuria (Theelothuria) spinifera</i> Théel, 1886	X		13,21,25,26
36. <i>Holothuria (Theelothuria) squamifera</i> Semper, 1868		X	21

¹⁸ *Maretia ovata* is a synonym of *Maretia planulata* – see Rowe & Gates, 1995: 243.¹⁹ *Bohadschia bivittata* and *B. vitiensis* are probable synonym of *B. marmorata* – see Rowe & Gates, 1995: 289.²⁰ *Holothuria (Microthele) axiologa* is a synonym of *H. (Microthele) fuscopunctata* – see Rowe & Gates, 1995: 295.²¹ This species was transferred to subgenus *Staurupora* – see Rowe & Gates, 1995: 299.

Table 1. Cont'd.

Taxa	Distribution		References
	Gulf of Thailand	Andaman Sea	
37. <i>Holothuria</i> (<i>Thymiosycia</i>) <i>arenicola</i> Semper, 1868		X	21
38. <i>Holothuria</i> (<i>Thymiosycia</i>) <i>conussalba</i> Cherbonnier & Feral, 1984		X	21
39. <i>Holothuria</i> (<i>Thymiosycia</i>) <i>hilla</i> Lesson, 1830 ²²		X	13,21,*
40. <i>Holothuria</i> (<i>Thymiosycia</i>) <i>impatiens</i> Forskål, 1775	X	X	3,7,12,19,21,23,36
41. <i>Labidodemas</i> <i>semperianum</i> Selenka, 1867		X	A
42. <i>Pearsonothuria</i> <i>graeffei</i> (Semper, 1868)	X	X	21,*
Stichopodidae			
43. <i>Stichopus</i> <i>chloronotus</i> Brandt, 1835	X	X	21,*
44. <i>Stichopus</i> <i>hermanni</i> Semper, 1868	X	X	20,36
45. <i>Stichopus</i> <i>horrens</i> Selenka, 1867	X		20,36
46. <i>Stichopus</i> <i>japonicus</i> Semper, 1868	X		12
47. <i>Stichopus</i> <i>naso</i> Semper, 1868	X		20,36,A
48. <i>Stichopus</i> <i>variegatus</i> Semper, 1868 ²³	X	X	3,7,12,13,20,21,23,36
49. <i>Stichopus</i> <i>vastus</i> Sluiter, 1888		X	A
50. <i>Thelenota</i> <i>ananas</i> (Jaeger, 1833)		X	21
Order DENDROCHIROTIDA			
Cucumariidae			
51. <i>Actinocucumis</i> <i>typicus</i> Ludwig, 1875		X	19,21
52. <i>Cercodemas</i> <i>anceps</i> (Selenka, 1867) ²⁴	X	X	3,12,19,21,23,36
53. <i>Colochirus</i> <i>quadrangularis</i> Troschel, 1843 ²⁵	X		3,13,21,23,36
54. <i>Cucumaria</i> <i>frondosa</i> (Gunner, 1767) ²⁶	X		13
55. <i>Cucumaria</i> <i>mosaica</i> Koehler ²⁶		X	21
56. <i>Leptopentacta</i> <i>javanicus</i> (Sluiter, 1881)		X	21
57. <i>Mensamaria</i> <i>bicolumnata</i> (Dendy & Hindle, 1907)	X		25,26
58. <i>Mensamaria</i> <i>intercedens</i> (Lampert, 1885)	X		5
59. <i>Plesiocolochirus</i> <i>australis</i> (Ludwig, 1875)	X		25
60. <i>Pseudocnus</i> <i>echinatus</i> (von Marenzeller, 1881)		X	7,21
61. <i>Pseudocolochirus</i> <i>violaceus</i> (Théel, 1886)		X	21
62. <i>Pseudocolochirus</i> sp.	X		13
Sclerodactylidae			
63. <i>Afrocucumis</i> <i>africana</i> (Semper, 1868)		X	21
64. <i>Cladolabes</i> <i>schmeltzii</i> (Ludwig, 1875)	X		25
Phyllophoridae			
65. <i>Globosita</i> <i>argus</i> (Heding & Panning, 1954)		X	21
66. <i>Havelockia</i> <i>versicolor</i> (Semper, 1868)	X		36
67. <i>Hemithyone</i> <i>semperi</i> (Bell, 1884)		X	21
68. <i>Phyllophorus</i> (<i>Phyllophorella</i>) <i>kohkutiensis</i> Heding & Panning, 1954		X	5
69. <i>Phyllophorus</i> (<i>Phyllophorella</i>) <i>parvipedes</i> H.L. Clark, 1938 ²⁷		X	21
70. <i>Phyllophorus</i> (<i>Phyllophorella</i>) <i>robusta</i> Heding & Panning, 1954	X		5
71. <i>Phyllophorus</i> (<i>Phyllothuria</i>) <i>cebuensis</i> Heding & Panning, 1954	X		5
72. <i>Phyllophorus</i> (<i>Urodemella</i>) <i>holothurioides</i> Ludwig, 1875		X	19
73. <i>Phyllophorus</i> sp.	X		26
74. <i>Selenkiella</i> <i>malayense</i> Heding & Panning, 1954	X		5
75. <i>Selenkiella</i> <i>siamense</i> Heding & Panning, 1954	X		5
76. <i>Stolus</i> <i>buccalis</i> (Stimpson, 1855)	X	X	21,23,36
77. <i>Stolus</i> <i>conjugens</i> (Semper, 1868)	X		*
78. <i>Thyone</i> <i>okeni</i> Bell, 1884	X		25,26
Order MOLPADIIDA			
Caudinidae			
79. <i>Acaudina</i> <i>leucoprocta</i> (H.L. Clark, 1938)	X		*
80. <i>Acaudina</i> <i>molpadioides</i> (Semper, 1868)		X	19,21
81. <i>Acaudina</i> sp.1	X		25
82. <i>Acaudina</i> sp.2	X		25
83. <i>Paracaudina</i> <i>chilensis</i> (Müller, 1850)	X		12

²² This included *Holothuria monocaria* (26) as a synonym of *H. (Thymiosycia) hilla* – see Rowe & Gates, 1995: 302.²³ According to taxonomic decision of Rowe & Gates, 1995: 324-326, it need to re-examine *Stichopus variegatus* specimens, especially from Andaman Sea.²⁴ This species was transferred from *Pentacta anceps* – see Rowe & Gates, 1995: 271-272.²⁵ This species was re-named from *Pentacta quadrangularis* – see Rowe & Gates, 1995: 272-273.²⁶ This species is probably misidentification – authors.²⁷ This species is a synonym of *P. (Phyllophorella) spiculata* Chang, 1935 – see Rowe & Gates, 1995: 312.

Table 1. Cont'd.

Taxa	Distribution		References
	Gulf of Thailand	Andaman Sea	
Molpadiidae			
84. <i>Molpadia roretzi</i> (von Marenzeller, 1877)	X		13
Order APODIDA			
Synaptidae			
85. <i>Opheodesoma australiensis</i> Heding, 1931	X		13
86. <i>Opheodesoma clarki</i> Heding, 1928		X	13, 21
87. <i>Opheodesoma grisea</i> (Semper, 1868)	X	X	21, A
88. <i>Opheodesoma lineata</i> Heding, 1928	X		4
89. <i>Polyplectana kefersteini</i> (Selenka, 1867)		X	21
90. <i>Polyplectana nigra</i> (Semper, 1868)		X	21
91. <i>Protankyra pseudodigitata</i> (Semper, 1868)		X	7, 21
92. <i>Synapta maculata</i> (Chamisso & Eysenhardt, 1821)		X	7, 12, 13, 21
93. <i>Synaptula recta</i> (Semper, 1868)	X	X	21, A
94. <i>Synaptula</i> aff. <i>virgata</i> (Sluiter, 1901)	X		23, 36

over a century, we have not yet completely known about their biodiversity. Up to the present, there is no monograph concerning Thai echinoderms. Most echinoderms of the former expedition were deposited in foreign museums. Since Thailand lacks funds and specialists, thus many specimens and types may have been overlooked. Some of the type species were lost and we cannot find other specimens in the type localities, especially ones in the Gulf of Thailand. One problem encountered at the present is that the marine environment changes rapidly in the Gulf of Thailand. Most of Thai echinoderms were obtained in shallow water (<30 meters depth). In recent years, PMBC have collected echinoderms from deep water of the Andaman Sea, but the result has not yet published. Most research works on Thai echinoderms are related to taxonomic works with little information on the ecology, life history and so on. Thus, it makes us lack other aspects of these animal's lives.

Need for Further Study on Biodiversity of Thai Echinoderms: As one can see from the historical account, the shallow water echinoderms are sufficient

for doing monographic works. The deep-water echinoderms should be encouraged for taxonomic study and others. According to the lack of biological and ecological information of echinoderms, it is important to encourage Thai marine scientists to speed up research work before it is too late to find echinoderm specimens for study.

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Table 2. Distribution patterns of echinoderms from Thailand.

Taxa	Species distribution			Total
	Gulf of Thailand (GT)	Andaman Sea (AS)	GT & AS	
Crinoidea	4	33	2	39
Asteroidea	17	37	15	69
Ophiuroidea	25	57	30	112
Echinoidea	17	25	25	67
Holothuroidea	30	39	25	94
Total	93	191	97	381

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